

REMARKS

Claims 1-87 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

Applicants would like to thank the Examiner for courtesy extended during the phone interview on June 15, 2005. During the interview, the Examiner agreed that the claims as amended above distinguish over the prior art of record subject to further consideration and/or search.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 4, 6-10, 13-15, 18, 20-24, 27-29, 32, 34-38, 41-43, 49-53, 56-58, 64-68, 71-73, 79-83, 86 and 87 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sluijs (U.S. Pat. No. 6,191,567). This rejection is respectfully traversed.

With respect to Claim 1, Sluijs does not show a control system to control an output regulator that includes a digital controller that switches from each of said at least three operating modes to remaining ones of said at least three operating modes based on a sense signal, which is based on the regulated output.

As best understood by Applicant, Sluijs transitions from two of the three operating modes based upon a duty cycle and not based upon a sense signal that is based on the regulated output. More particularly, Sluijs states:

A converter for converting an input voltage (U_i) into an output voltage (U_o). The converter has several modes of operation. The converter can, for example, operate in an up-conversion mode, a down-conversion mode, or a window conversion mode. The converter has at least one switch (S_1 - S_4) for controlling the converter so as to obtain a desired value of the output voltage (U_o) in the up-conversion mode and in the down-conversion mode.

This is achieved by changing the duty cycle of a binary signal (BS) which controls the switch (S_1 - S_4). ***The converter further includes means (DMNS) for detecting the duty cycle of the binary signal (BS). This duty cycle is compared with a reference duty cycle (RFDCCL). The result of this comparison is used for deciding whether or not to change over from the up-conversion mode (or the down-conversion mode) to the window conversion mode.*** In the window conversion mode each switch (S_1 - S_4) in the converter is permanently closed or open. In the window conversion mode the output voltage (U_0) is roughly equal to the input voltage (U_i). The converter remains in the window conversion mode as long as the output voltage (U_0) is within a given voltage window (range). However, if the output voltage (U_0) has become too low, the converter changes over from the window conversion mode to the up-conversion mode. In a similar way, the converter changes over from the window conversion mode to the down-conversion mode when the output voltage (U_0) has become too high.

Abstract of Sluijs (emphasis added). Also see, Col. 1, lines 45-50.

In other words, Sluijs transitions from upconverting mode or downconverting mode to the window mode based on a comparison of a duty cycle with a reference duty cycle. By specifying the use of duty cycle feedback for these modes instead of feedback of the regulated output via the sense signal, Sluijs **teaches away** from the present invention. A reference must be considered for all that it teaches including disclosures that diverge and teach away as well as those that point towards and teach the invention. In re Dow Chemical Co., 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988). By teaching the use of feedback based on duty cycle rather than the regulated output, Sluijs teaches away from the present invention.

In contrast, the claims require the transitions from each of the modes to the two remaining modes to be made based upon the sense signal, which is based on the regulated output.

For at least the foregoing reasons, Applicant believes that Claim 1 is allowable

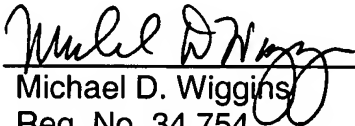
over Sluijs. Claims 15, 29, 43, 58, and 73 are allowable for at least similar reasons. The remaining claims are directly or indirectly dependent upon Claims 15, 29, 43, 58, and 73 and are allowable for at least similar reasons.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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